

VIRGINIA WILDLIFE

JULY 2007

TWO DOLLARS





J. Carlton Courter, III

Director



Virginia has about 250,000 registered motorboats, including nearly 30,000 personal watercraft. Boating on Virginia's waters is a safe and enjoyable recreational leisure-time activity and boating safety knowledge, gained through the successful completion of a boating course, provides the recreational boater with an excellent tool to help manage the risk involved in boating. During the 2007 Session of the Virginia General Assembly, lawmakers passed new legislation that will, over the next several years, require most boat operators in Virginia to take a boating safety education course.

House Bill 1627 and Senate Bill 1241, which are identical to each other, were passed and have now been signed into law by Governor Kaine, effective July 1, 2007. And although the bills go into effect this month, the first year will be committed to the development of the implementing regulations by the Department's Board of Game and Inland Fisheries. These regulations have to be in place by July 1, 2008, so **until that time, there will be no new changes that will affect Virginia's boaters.**

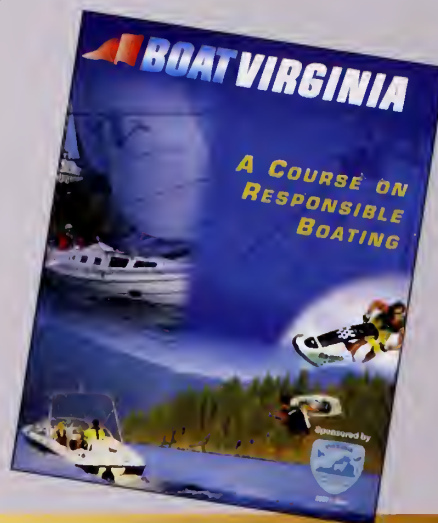
The new boating safety requirement is phased-in according to age category and also according to whether the type of boat being operated is a motorboat or a personal watercraft (PWC). The requirement for boating safety education applies to public waters of the Chesapeake Bay, our river systems (both fresh and tidal water), and most of the lakes in Virginia. It is important to note however, that there are some lakes in Virginia that are not public.

There is a civil penalty for not complying with this law and money from fines will be deposited in the Motorboat and Water Safety Fund of the Game Protection Fund which the VDGIF uses for boating safety work such as boating education and boating

law enforcement.

With this new requirement, the Department expects to see the number of recreational boating accidents and fatalities decline. You will find additional information concerning the new boating safety education requirement in this issue of *Virginia Wildlife* in Jim Crosby's, "On the Water," column on page 34. If you would like to sign up for a boating safety course, I encourage you to visit the Department's Web site or call 1-804-367-1000.

Our long-standing message for boating has always been **Be Responsible, Be Safe...Have Fun!** Safe and enjoyable is what boating is supposed to be about, so have a great boating season and experience the adventure that only time on the water can provide.



Mission Statement

To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth; to provide opportunity for all to enjoy wildlife, inland fish, boating and related outdoor recreation; to promote safety for persons and property in connection with boating, hunting and fishing.

Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

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Timothy M. Kaine, Governor

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About the Cover:

The majority of veery (*Catharus fuscescens*) visit Virginia during the summer months, flying as many as 150 miles throughout the night on their migrations south. They travel as far as South America. Their name is derived from its flute-like call

“pheeew or veer.” Similar to other thrushes, the veery is smaller and prefers to inhabit heavily forested areas of the Alleghany and Appalachian mountains and the eastern wetlands around the Great Dismal Swamp National Wildlife Refuge. You have to look closely to spot a veery, as they like to fly and hop in and out of dense cover as they scratch leaves and loose groundcover looking for food. Painting ©Spike Knuth.

The Department of Game and Inland Fisheries welcomes Progress Printing in Lynchburg, Virginia as the new printer of *Virginia Wildlife* magazine.

VIRGINIA WILDLIFE

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Boaters to Get Educated

In a “SUPERSIZE” world Virginia’s small waters offer excellent angling, boating and wildlife viewing opportunities.

story by Tee Clarkson
photos by Dwight Dyke

Rising from the banks, huge oaks stand like monuments to the way things used to be. Closer to the forest floor, undergrowth wraps and weaves its way around everything from saplings to deadfall, forming an impenetrable wall of lush greenness. Down here the lingering fog still lurks quietly on the water’s surface. If one didn’t know any better, he or she might feel as if they had been sent back four hundred years to a time when our ancestors first discovered this land.

A flick of the bail and a flick of the wrist send a small grub catapulting through the cool air, dropping with a soft splash by a fallen tree. It takes just two turns of the handle and the line comes tight, slicing through the slow current to the middle of the small river. In a minute a fine redbreast sunfish surrenders to the hand.

We have all heard of The James, The New, The Rapahannock, The Potomac. The mighty waters of our state. They provide for wonderful fishing, easy access, and scenic floats, and because we have them, we often overlook our smaller waters, and in doing so, miss out on some of the best floating and fishing in the state.



©Dwight Dyke

A Small Tip

As for the names of these great small waters, I have only fished some, and won’t name them here. They make up the secret and dear places to my heart. If you happen to come around the corner in your canoe on a fine fall afternoon and find me anchored in an eddy or eating lunch on a quiet sandbar, so be it, but I cannot in good conscience tell you where I’ll be.

There are thousands of miles of small waters twisting and turning throughout our state, and some can be found in your backyard, no matter where you live. Many of them provide tremendous fishing and wildlife viewing opportunities not available on larger, more crowded waters.

Finding Them

Finding small waters close to where you live is as simple as pulling out a map. A detailed atlas of Virginia will even provide locations of boat ramps. The Find Game program at the Department of Game and Inland Fisheries website also contains a map of the entire state and allows you to zoom into the areas near your home.

As for access, look for bridges. Many have boat ramps near them or offer opportunities for wade fishing. Canoes and kayaks are easy to tote and allow for discovering and exploring even the most difficult and out-of-the-way areas. It is often a good idea to bring a rope for lining



©Dwight Dyke

for a Big Time



©Dwight Dyke

canoes in and out of tough spots. One rule to remember, the tougher it is to get to, the fewer the fishermen and likely the better the fishing.

Their Fish

All small rivers in the state offer fishing. Granted some are better than others and some times of year are more productive. The redbreast sunfish in the eastern portion of the state and the redeye in the west offer the most consistent action year-round on small spinning gear. But these staples don't provide the only opportunities. Far from it. Most small waters contain largemouth and smallmouth bass. The further west you go the more smallmouth you will find, but

Virginia is laced with numerous small streams and lakes that offer great angling and boating opportunities. When the "Dog Days" of summer are here and temperatures are soaring, nothing can be more relaxing than a float trip mixed with a little shallow water wading.

Left: Light spinning tackle and a good selection of small minnow-like lures and spinners can produce surprising results. You may not find a lot of big fish in small streams, but the variety of colorful species of sunfish and bass should keep you occupied.



many rivers contain healthy populations of both. The headwaters of many larger rivers in the east that ultimately empty into the Chesapeake Bay provide action for anadromous fish like striped bass and shad in the spring. White and yellow perch will head upstream this time of year as well to spawn in great numbers. Then, of course, there are catfish, pickerel and even muskie in some secret hideaways.

Fishing Them

As for equipment, often less is better. There is rarely a need to load down a canoe with bags and bags of lures and baits. Grubs, small crankbaits, spinners, and rubber worms will get the job done on most species in most locations. In terms of rods: short, compact, light or medium action spinning gear is the best choice. It may be unlikely that the next state record smallmouth will come from a small river, but it is not uncommon to tangle with healthy fish on many of these floats, so it is best to have equipment that can handle them.

In terms of where to find the fish, it depends on what you are looking for and when. Migrating fish like striped bass and shad prefer to rest in the deeper holes often associated with bends in the river. Both large and smallmouth bass will congregate in these areas as well, but they tend to associate more with cover like fallen trees and boulders. When the summer sun gets high and the water low, look for shaded areas below oxygenated riffles to find the healthiest and most aggressive fish.

Above all else, be stealthy. It is a common misconception that fish that receive little fishing pressure are not spooky. In fact, the opposite is often true. Since fish in small, out-of-the-way waters rarely see humans, they

The Department's Web site or a copy of the Delorme, Virginia Atlas & Gazetteer can be excellent resources for locating some of the thousands of miles of small water streams and lakes in the state.

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are often quick to dart under rocks and ledges if they detect even the slightest disturbance in their surroundings. If you approach them without being detected, however, they are usually more willing to bite a lure than fish that receive more pressure. With this in mind, it is often a good idea to hug the bank opposite of the one you are fishing. In a canoe or kayak, position the boat parallel with the current and cast to the far side. When conditions permit, stopping and wading quietly into promising water may prove the best bet.

When floating on a fast moving stream it's a good idea to stop and do a little wade fishing. In the Piedmont area of the state streams tend to be slower moving, with flat sandy bottoms, making them easier to wade and move around in. Besides there is nothing better than to have a little sand between your toes and fish on the other end of your rod.

Just Float

While our small waters often provide some wonderful angling opportunities, their wealth does not stop there. Even if you are not an angler, Virginia's small waters offer excellent wildlife viewing and much needed time away from the world we more often inhabit. It is not uncommon to round a bend in the river and find a goose nesting on a small island, or a pair of wood ducks lounging in an eddy, even a family of otters feasting on their most recent prey.

With all of the opportunities surrounding us, my guess is you already know a promising small river, maybe one you have been driving over for years, wondering, are there fish in there? The answer is undoubtedly, yes. And you may be surprised by how many. □

Tee Clarkson is a high school English teacher. In his spare time runs Virginia Fishing Adventures, a fishing camp for kids. For more information you can contact Tee at: tclarkson@virginiafishingadventures.com.



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Habitat

*How sportsmen,
wildlife enthusiasts and
government agencies
can improve
Virginia's wildlife
habitat.*

by Bruce Ingram

As dawn began to break across the Franklin County cut cornfield, I tuned into the various sounds of an early November morning, meanwhile resting my muzzleloader across my knees. Sitting under the low hanging limbs of an ancient red cedar tree in the midst of the field, I soon heard the yelps of jakes and jennies coming from the heavily wooded riparian zone below. From the overgrown fencerow to my right, I harked to the whistled call notes of a bobwhite covey.

Behind me in a woodlot, I detected the lilting notes of song sparrows, Carolina wrens, rufous-sided towhees, followed by the tinkling sounds of a ruby-crowned kinglet that flew into the cedar. Shortly afterwards, I espied a mature doe enter the field from the woods where the turkeys roosted. I slowly mounted the smokepole, trained the scope on the doe's vitals, clicked off the safety, and fired. Seconds later, I was standing over the doe, preparing to field dress her.

I was afield on the 1,000-acre farm of Johnny and Sharon Angell of Penhook—two of the most dedicated stewards of wildlife habitat that I have ever had the pleasure to meet. Many of the management activities

©Dwight Dylke

Each Other



©Bruce Ingram

Bobwhite quail need open land with good overhead cover. A field full of warm season grasses can provide those needs.

that take place on this Franklin County farm are done for the benefit of wildlife. These include the undisturbed riparian zones along the Pigg River and its tributaries, the overgrown fencerows, the corn and soybeans fields that Sharon periodically bush hogs for wildlife, the warm season grasses that the Angells plant, their planned elimination of cold season grasses such as fescue, and the prescribed burns that the couple conducts.

"I consider myself a redneck environmentalist," laughs Johnny as I talk with him and Sharon in their farmhouse. "When I was younger, I was always trying to see how much my land could produce. But as I've matured, I've come to realize the importance of land for the future of wildlife. And I've come to really enjoy the providing and creating of

Bill Moss of the NRCS shows the author an aerial map of his property and discusses strategies for creating a meadow consisting of native warm season grasses.

quality habitat for game and nongame wildlife. Sharon's and my ultimate goal is to have a place where the wildlife can continue on after us."

Besides the activities already mentioned, Johnny and Sharon have a host of other ongoing projects. Within the past two years, they have learned that rearing prawns, often called freshwater shrimp, is a land friendly activity that also offers the potential for steady income. The couple also grows loblolly pines for timber and have found that quail take to these stands for their first seven to eight years.

Johnny is fond of saying that "One way to get a big tree is to start with a little one" and toward that end the couple have planted fast maturing sawtooth oaks. The twosome also try to leave mature oaks as shelter trees whenever they perform a strategic cut. And every year Sharon proclaims that "she wears out a bush hog" in an effort to keep fields plant-

ed in warm season grasses from being overrun with saplings and other vegetation.

Virginia Department of Game and Inland Fisheries (VDGIF) biologist Marc Puckett helped the Angells draw up a habitat improvement plan. He offers these tips.

"As far as the warm season grasses are concerned, they are certainly better for wildlife than fescue," says Puckett. "A mixture of indiagrass, Blackwell switchgrass, and big bluestem at a rate of two pounds per acre each is a good wildlife mixture. If your goal is primary forage, plant them at a rate of three pounds each."

The biologist suggests that landowners sow these warm season grasses in late May to early June. The best method of establishment is to hay the existing grass in late April or early May. Once the grass renews itself about six inches, spray with two quarts per acre of Roundup. Let the plot die back a week or two, then no-till plant into the killed grass.

Puckett emphasizes that three objectives are to create a firm seedbed, not plant the seeds more than 1/4-inch deep, and manage weed competition. Also landowners should attempt to plant when the ground is not wet or soft, especially when dealing with heavy or clay soils. Adding a legume such as Par-



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Sharon Angell checks a sorghum field that she earlier bush hogged so that wildlife would benefit. Johnny and Sharon Angell live off their land, but they are also good stewards of their surroundings. Below: Young turkey poult.

tridge pea to the grass mix is also helpful. Finally, disturbing the soil (such as disking) every three years is a good strategy, too.

Crop Field Edges

Mark Puckett proclaims that crop field edges are some of the best places for landowners to create wildlife habitat.

"Many landowners are not very crazy about just letting weeds grow," he says. "However, native vegetation is what quail, for example, need. One of the simplest and most effective techniques for establishing a field border is leaving an unplanted edge a minimum of 25 feet out from the woods edge. In this area, native grasses and weeds will grow. Nesting quail and turkeys and their poults will use these areas."

Puckett adds that these areas can be maintained by disking $\frac{1}{3}$ of the total field border acreage every year during late February or March. Most crop field edges, particularly those along wooded areas, are poor crop producers. Competition from trees for nutrients and sunlight often make these edges net losses for the farmer.

"From farmers' standpoints, I'm not sure why they would waste time,

seed and chemical in these areas, particularly when cost-share exists to help farmers leave these acres for wildlife," continues the biologist.

Puckett gives a simple formula for planting a field crop edge.

- ✓ Northern edges are best because they receive the most sunlight.
- ✓ Use the tree species that grow tallest nearest the woods and progress outwardly with lower growing shrubs and plants.
- ✓ A good progression from inside out would be sawtooth oaks (can produce acorns in five to ten years), wild plums (great for sandy soils), VA-70 lespedeza (good for a variety of soils), and a mixture of Korean, kobe and partridge pea (5, 5 and 2 pounds, respectively per acre).
- ✓ Sow the mixture in late February or early March but will do satisfactorily up to mid-April. These species do well on clay and sandy loam but not as well on very sandy soil.
- ✓ Don't worry about native weeds springing up. They are a plus for wildlife.
- ✓ Lespedezas and partridge peas are annuals, but they reseed heavily. Light disking in February and March will help them reseed.

Puckett concludes by emphasizing that quail chicks, turkey poults, and a host of songbird species will

utilize these crop edges for they are somewhat closed at the canopy level, thus helping serve as protection from overhead predators. But these plants allow easy mobility underneath, as well as hosting numerous insects (which are critical foods for young birds) such as beetles, leafhoppers, and grasshoppers.

Creating My Own Wildlife Oasis

This past April, Bill Moss of the National Resources Conservation Service (which is part of the United States Department of Agriculture) visited land I own in Craig County. Our mission was to begin the process of establishing a warm season grasses meadow, consisting of indian-grass, Blackwell switchgrass and big bluestem. The summer before, a logger had created an 11-acre clearcut to create habitat diversity. The meadow would bring additional diversity to my mostly wooded property.

Moss began the process by taking a soil test, which determined, as is true across most of Virginia, that the soil needed lime. Then he conducted a GPS reading to delineate the 1-acre section that had been designated as future grassland. The reading also helped determine exactly how much lime and seed would be needed, as well as enabling Moss to "map it," that is have an aerial photograph of the precise spot.

"The reason for mapping the field is to measure the acreage for treatment, identify the field on a map and on the landowner's conservation plan," he says.



©Lloyd Hill

Finally, Moss lists the steps along the way (which are typical) for a warm season grasses meadow to come into existence.

- ✓ To create a seedbed, clear stumps, rocks, and woody debris.
- ✓ Moss recommends a "carrier" so that the "fluffy" seed is not blown away. A good choice is a fertilizer with very low nitrogen content such as 5-10-10 or less. Mix about half fertilizer and half seed to broadcast. Plant from May 15 to July 1.
- ✓ Broadcast seed (2 part switchgrass to 1 part Kaw big bluestem to 1 part Cheyenne indiagrass; Also add a legume like 2 parts

partridge pea) after lightly disking the area.

- ✓ Afterwards at least half the seed should be visible.
- ✓ Drag soil to cover seed. Pray afterwards for a lot of rain.
- ✓ A firebreak of an annual or perennial could be planted around the meadow.
- ✓ For additional habitat diversity, consider setting aside land in the middle of the meadow as a perennial or annual food plot.
- ✓ Expect two years to pass before the meadow becomes well-established.
- ✓ When weed competition occurs, open the canopy to sunlight by setting mower at least 12 inches

high to clip the tops of weeds without cutting emerging grass.

- ✓ Consider applying for cost share through WHIP (Wildlife Habitat Incentive Program) which can pay up to 75 percent of the cost. The sign-up period is October 1 through January 13.

Getting Started

VDGIF wildlife biologist Betsy Stinson recommends that landowners have in mind the answers for these questions before starting a project.

1. What is the total acreage of the property and how much acreage will be managed?
2. Is the acreage to be managed forested or open land?
3. What are your management goals?
4. What species are you interested in managing for?
5. How active are you willing to be in your management? That is, how much time do you have to manage the property, do you have access to tractor and disk, and/or bush hog? Knowing what type of time commitment you are able to make in managing your wildlife area helps biologists develop a wildlife habitat plan that is best suited to your needs.

Stinson also recommends that property owners obtain a topo map showing the property boundaries and the areas that they are interested in managing delineated. Also, an aerial photo of your property is useful to have before starting on your wildlife management plan. □

Bruce Ingram is the author of: The James River Guide, The New River Guide, and The Shenandoah/Rappahannock Rivers Guide. To obtain a copy contact Bruce Ingram at P.O. Box 429, Fincastle, VA 24090.

Creating good wildlife habitat and cover takes some planning and a lot of hard work. The results can be well worth the effort, not only for the landowner, but for the many species of wildlife that will rely on the space for safe cover and food.



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Virginia's Spotted

Illustrations and story
by Spike Knuth

Picture yourself walking alongside a gurgling, rocky stream, hedged by quiet, shaded woodlands. Long fronds of hemlocks and rhododendron drape over the riffles and rocks. The understory is carpeted with ferns. From a distant thicket you hear a stirring flute-like call, the strains of which have an almost mystical quality. This would be the call of one of the spotted breasted thrushes, arguably the best singers in the bird world.

In appearance, the spotted thrushes resemble each other so closely that it is difficult to make positive identification at times. The fact that they are so shy, secretive and quiet makes them difficult to see in the dark shadows of the woodlands. Additionally there are many geographic variations or subspecies which add to the confusion.

The spotted thrushes have other similarities. They all scratch in the forest humus for food, and occasionally catch insects on the wing like a flycatcher. They are primarily insect eaters, but come fall they turn to a wide variety of wild berries. They are all basically brownish above and buffy to gray below, with variations of spotting.

They have eyes that are proportionately large to their head. Spotted thrushes migrate at night. They all build similar nests low to the ground making use of moss, forest humus, leaf mold and vegetable fibers available in their particular area. They all lay eggs with a basic greenish-blue base color marked with browns.

Three of them breed in Virginia; one winters in Virginia and the others pass through on migration to their breeding or wintering grounds.



Hermit Thrush

Be Wild! Live Wild!

otted Thrushes



Wood Thrush

Wood Thrush

Hyloichia mustelina

This woodland songster is Virginia's most common and largest spotted thrush. Its song is clear and flute-like. It arrives about the last week of April and is truly one of the pleasant sounds of spring in the woodlands. It is a bird of deciduous forests, favoring low, dense and damp woodlands with thick understorey. It tends to nest a little higher than the others, usually in dense shrubs or fork of a small tree.

With the coming of the end of breeding season the wood thrush becomes silent and it heads south in September to southern Mexico, Central America and western Panama.

Identifying Marks: The best identifying marks of the wood thrush are its reddish-brown head changing to olive-brown on the back and to-

wards the tail. It also has large, dark, round spots on a whitish breast; a white eye ring, and white cheeks with fine black lines.

Hermit Thrush

Catharus guttatus

The hermit thrush is arguably the best of all bird vocalists. It is named because it is usually seen alone. Like other spotted thrushes they tend to be shy and stay out of sight, yet at the same time it is a curious bird and will often tag along or fly ahead of someone walking in the woods.

It lives in a variety of habitats, from wet, dense woodlands, to wooded swamps, mixed woodlands of hardwoods, hemlock and pine, and sometimes cutovers with new thick growths of brush.

Hermit thrushes have been recorded nesting in the northern mountains of Virginia but most breed in northern states and far up into Canada. It commonly winters all over Virginia and down to the Gulf Coast.

Identifying Marks: The best field mark is its reddish-brown tail and rump, changing to olive-brown on its back towards the head. It also has the habit of jerking its tail upward then letting it down slowly. Its underparts are buffy white with streaks and smaller spots and a dull white, but conspicuous eyering.

Veery

Catharus fuscescens

Its song is similar and close to equal that of the hermit thrush. It has been described as being strange, and eerie, one of the sweetest sounds in the woodlands. It's clear and flute-like, resonating, yet soft and at times seemingly far away.

The veery is a summer bird in Virginia, breeding mainly in the Alleghany and Appalachian forests. They nest above 3,000 feet amid mixed oak, pine and others with an understorey of rhododendron.



Veery

Grow Wild!



Swainson's Thrush

The veery arrives to Virginia in the latter part of April, often at night. It seems to remain silent at first, as if reluctant to announce its arrival, but soon its call echoes through the hollows and over the ridges. The veery nests on or near the ground in low shrubs.

August finds the veery on the move south and by mid-September most are gone to South America via Mexico and Central America.

Identifying marks: The best identifying features are the tawny brown color above, white below with

light, tawny spots on a buffy breast. It is the least spotted of the forest thrushes. Its flanks and cheeks are grayish-buffy, and its chin and throat are white.

Swainson's Thrush

Catharus ustulatus

The Swainson's thrush, sometimes called the olive-backed thrush, is one of five subspecies in the *Catharus ustulatus* group and is the one found locally in the Appalachians of Virginia. It too sings a rising series of fluty notes, fading at the end. It

also has a "heep" call which is similar to the spring peeper, a tiny frog. Like its cousins, it is shy and retiring.

Swainson's move through Virginia about mid-May on its way north to its breeding grounds. They nest in the northern Great Lakes region, New England and Canada from Newfoundland to northwest Alaska. It prefers mixed woodlands of fir, spruce and birch, and favors damp areas.

Come fall, the Swainson's migration peaks in mid-September as it travels through Central America to South America.

Identifying Marks: The Swainson's is more uniformly colored with olive-brown above, with white and buffy underparts and blackish spots. The flanks are buffy-olive, and it shows bold "spectacles" or eye rings and buffy cheeks, which stand out.

Gray-cheeked Thrush

Catharus minimus

The gray-cheeked thrush has the distinction of migrating farther than any other thrush. Despite this it doesn't seem to be in a hurry and it often lingers south of its breeding range into June. There are two sub-species, and they nest throughout northern



Gray-cheeked Thrush

and Arctic Canada, Alaska and into Siberia.

It nests in the tundra regions where stunted willow, alder, and birches grow and also in spruce and tamarack woods. Its song is not as musical as the others. Like their spotted thrush kin, they are mainly insectivorous in summer, but come fall they turn to wild fruits and berries, especially on their southward migrations.

The gray-cheeked thrush heads south about early September following the same flight paths it used in spring. It migrates through Virginia on its way to winter in the Amazon Basin of South America.

Identifying Marks: Measuring about 7½ inches, the gray-cheeked is grayish-olive above and dull whitish below. It has washed, grayish flanks and dark, dense grayish-dusky spots. The side of its head is grayish with light, narrow streaking.

Bicknell's Thrush

Catharus bicknelli

It is similar to the gray-cheeked but smaller (6-6½ inches) and has a smaller breeding range. It was discovered by and named for E.P. Bicknell in 1881 and is considered a southern sub-species of the gray-cheeked.

The Bicknell's reaches the southern Atlantic states early in May from the West Indies. It moves northward along the coast, passing through Virginia about mid-May, as it heads for its mountain breeding grounds in southeastern Canada and northeastern United States. About late May they move up into the stunted birch, spruce and fir forests up to 3,500 feet elevation.

Since they nest in such inaccessible places, little is known of the bird's nesting habits. It does nest in low growing trees and shrubs using similar materials as other spotted breast thrushes.

Apparently it migrates east of the Appalachians as it moves south at the end of September or early-October, and by the end of October they head offshore between the Carolinas and Florida to the mountains of the



Bicknell's Thrush

Greater Antilles, especially Hispaniola.

Identification Marks: The tail of the Bicknell's is more reddish-brown than the gray-cheeked, is darker olive-brown above, with a buffy throat and breast, grayish-brown flanks, and spotted with dark brown spots. The bill is more yellow, while the gray-cheeked is flesh-colored. □

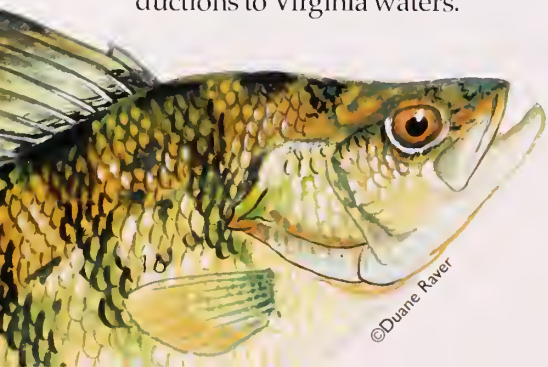
Spike Knuth is an avid naturalist and wildlife artist. For over 30 years his artwork and writing have appeared in Virginia Wildlife.

Be Wild! Live Wild! Grow Wild! is a regular feature that will highlight the Virginia Wildlife Action Plan, which is designed to unite natural resources agencies, sportsmen and women, conservationists and citizens in a common vision for the conservation of the Commonwealth's wildlife and habitats in which they live. To learn more or to become involved with this new program visit: bewildvirginia.org.

Creatures from

by John R. Copeland

Since my view of water was shaped by "Creature from the Black Lagoon," a 1950s movie about a humanoid amphibious fish found during a scientific expedition on the Amazon River, I grew up fearing creatures in nearby waters. Fortunately, my children are curious about things that live in water. A few years ago, at a lake near my hometown of Crozet, in Albemarle County, my kids brought me an unusually large snail they found in the lake. The critter we found that day was an exotic species known as the Japanese mysterysnail (*Bellamya japonica*). This exotic snail, introduced to the United States through Asian food markets during the late 1800s, has spread widely throughout the U.S., resulting in impacts to native species. My experience that day and discussions with Virginia fisheries biologists led me to write an article on fish introductions to Virginia waters.



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Carp and yellow perch are two of the many fish species that were introduced into Virginia's waters whose numbers exploded in a short period of time.

According to the U. S. Geological Survey's 2004 Summary Report of Nonindigenous Aquatic Species, in U.S. Fish and Wildlife Service Region 5 (stretching from Virginia to Maine), Virginia has the most introduced fish species, with nearly 100. Within Region 5, stocking is the dominant pathway of fish introductions, accounting for nearly 50 percent of the species.

Bait release is the second most commonly used pathway and aquarium releases (or escapes from tropical fish farms) are third. This article will focus on the latter two pathways, because these are the fish introductions readers of this magazine can help prevent. According to a number of sources, the consequence of stocking non-native (exotic) fish or transplanting native fish to new areas are very similar. When introduced to new waters, these fish typically increase their population exponentially, resulting in the displacement of valuable na-

The Black Lagoon

The second in a series of articles that look at the introduction of exotic species and the threat they pose to Virginia's wildlife and natural resources.



©Dwight Dyke

tive fishes. This article focuses on introducing exotic and native fishes to new locations.

The common carp (*Cyprinus carpio*) is an exotic fish whose spread is facilitated through bait release. This native of Europe and Asia was widely introduced to the United States in the 1800s as a game and food fish. Now, varieties of common carp, known as leather carp, mirror carp, and Israeli carp, are often marketed as baitfish. Fisheries biologist Paul Bugas pointed to the baitfish trade as the introduction source for common

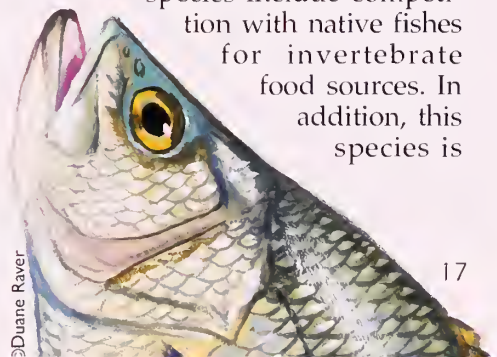
Carp have become one of the most notable of all exotic fish species introduced into the United States. Today they can be found in about every body of warm water in Virginia. An excellent adversary, carp will test your angling skills. Unfortunately, their presence can be very destructive to native fish populations and their habitat.

carp in Lake Moomaw during summer 1997. In that case, common carp were marketed to bait dealers under the trade name "copperside shiners." An unsuspecting angler dumped some of these fish into Lake

Moomaw. The result is an abundant population of carp in a reservoir that previously had none. A number of small reservoirs in Virginia do not contain common carp. Preventing the spread of this exotic to these lakes will ensure better fishing for the future. Common carp impact water clarity by stirring up sediment, using their preferred feeding mode of filtering bottom sediments. They also root out aquatic vegetation that serves as valuable habitat for fish and waterfowl. Anglers purchasing baitfish should be alert to introducing unwanted exotics like common carp to nearby waters that do not contain them.

Another widely transported exotic baitfish in the United States is the rudd (*Scardinius erythrophthalmus*), sometimes marketed as "rosy reds." This native of western Europe was first transported to the United States in the late 1800s or early 1900s. Since then, it has been widely introduced as a baitfish. Potential impacts of this

species include competition with native fishes for invertebrate food sources. In addition, this species is



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able to feed on plants, an advantage that allows it to compete with native fish with less diverse diets. Assistant Director of Fisheries, Ron Southwick, intercepted a shipment of these exotics to a local baitfish dealer in southeastern Virginia a few years ago, thereby limiting an exotic fish introduction.

Native fish species can become a problem when introduced in new locations. The Department's Fisheries Division has sponsored research through Virginia Tech's Department of Fisheries and Wildlife Sciences on the potential impacts of a couple of native species that were transplanted to new waters in Virginia.

One species studied by Virginia Tech researcher Dr. John Ney and his graduate students Ron Small and Craig Bonds was the gizzard shad (*Dorosoma cepedianum*). This hardy species, a native to the Atlantic coast and Mississippi River system, was introduced to Claytor Lake by an angler during the late 1980s. Regarded by anglers as a desirable forage fish for toothy predators like striped bass, it causes problems for sunfish and bass in many southern reservoirs. In many of these reservoirs, gizzard shad reach high densities, causing a zooplankton population crash. Since young sunfish and bass depend on these zooplankton for food, their survival and growth are negatively impacted. This impact has not developed at Claytor Lake, due to the low

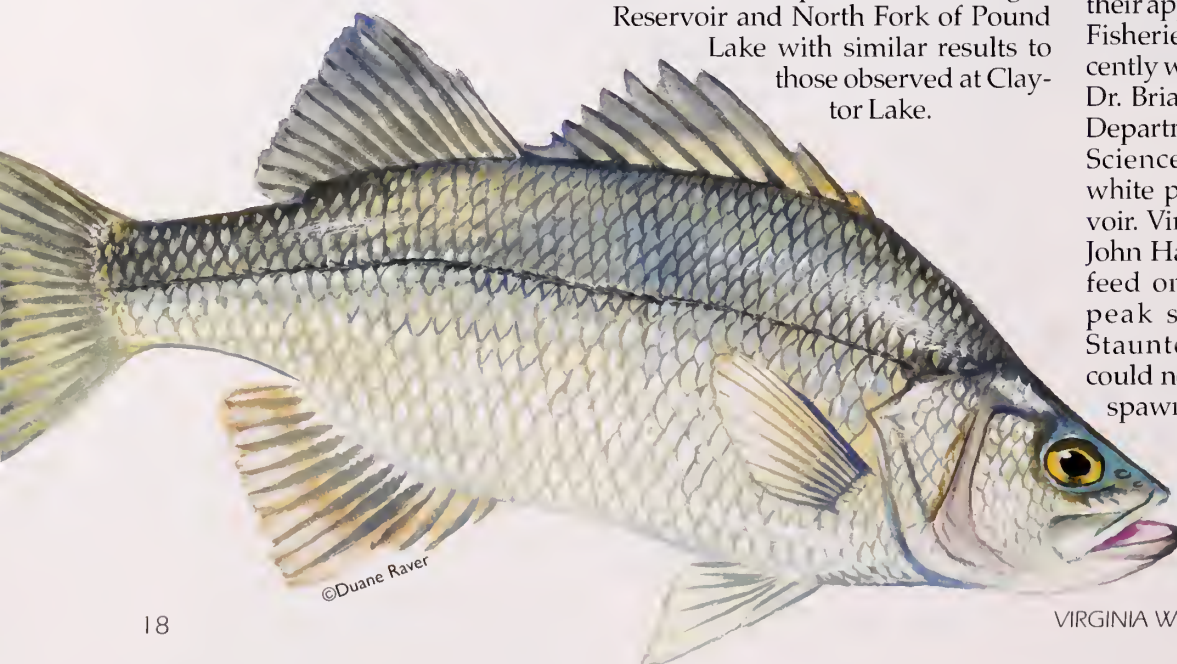


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population density gizzard shad achieve in this mountain reservoir. However, the potential for an impact exists, if any factors controlling gizzard shad populations in this lake change. One drawback of gizzard shad in Claytor Lake is that they grow so quickly striped bass do not typically eat them after they reach 8 inches in length, a feat achieved by these fish within one year! As a result, large gizzard shad swim freely in Claytor Lake, consuming food resources that could be used by other fishes. According to fisheries biologist Tom Hampton, gizzard shad have been transplanted to Flannagan Reservoir and North Fork of Pound Lake with similar results to those observed at Claytor Lake.

Good fisheries management can be a delicate balancing act. Too many of one species of fish or not enough of another could make the difference between trophy fish or a stringer filled with stunted fish.

Kerr Reservoir (locally known as Bugg's Island Lake), in southside Virginia, is overrun by an introduced population of white perch (*Morone americana*). This species is native to estuaries of the eastern United States and Canada. When introduced to inland reservoirs, juvenile white perch impact resident fish species through direct competition for zooplankton and insects, and as they grow so does their appetite for fish eggs and larvae. Fisheries biologist Vic DiCenzo recently worked with Dr. John Ney and Dr. Brian Murphy in Virginia Tech's Department of Fisheries and Wildlife Sciences to study the impacts of white perch in this important reservoir. Virginia Tech graduate student, John Harris, found that white perch feed on striped bass eggs during peak spawning periods in the Staunton River, suggesting they could negatively impact striped bass spawning success. This finding is



White perch

©Duane Raver

significant, since Kerr Reservoir contains one of a handful of naturally reproducing striped bass populations in inland reservoirs in the country. Mr. Harris also documented significant dietary competition between juvenile and adult white perch and crappie, a finding that could result in future impacts to the leading crappie fishery in Virginia.

One compelling tale of a fish introduction is valuable to note. One of southwest Virginia's leading brook trout fisheries is a small reservoir near the top of the Department's Clinch Mountain Wildlife Management Area near Saltville. During the 1970s and 1980s, this fishery produced quality trout fishing opportunities in a unique setting for Virginia anglers. At some point during these years, a visiting angler decided they

restored twice over the years since it was constructed. Each time, the rock bass have restored their numbers unchecked. Fisheries biologist Tom Hampton worked on the most recent lake restoration project. Before draining the lake in the late 1990s, he documented rock bass that achieved the enviable size of 5 inches in length. The stunted rock bass in Laurel Bed Lake obviously failed to create the fishery desired by whoever put the rock bass in this lake. Each time Department fisheries biologists restore this lake fishery, it costs Virginia's anglers unnecessary expense. During the most recent restoration effort, Hampton successfully introduced smallmouth bass to the lake as a rock bass predator, a measure which is controlling their population growth.

Since the time I began writing this article in summer 2006, additional fish introductions have occurred in Virginia's inland waters. Paul Bugas

Yellow perch are fun to catch and great eating, but when introduced improperly to a well managed body of water, such as Douthat Lake, could spell disaster.

informed me that yellow perch (*Perca flavescens*) were recently introduced to Douthat Lake, a small impoundment of Wilson Creek in Douthat State Park, near the Bath and Alleghany County line. This heavily used lake is a popular trout fishery much of each year. However, during the season when trout stocking is suspended, this lake provides good fishing for largemouth bass, sunfish and black crappie. The yellow perch introduction is likely to change this fishery significantly.

should help Department fisheries biologists diversify the Laurel Bed Lake fishery by stocking rock bass (*Ambloplites rupestris*) into this mountain reservoir. Rock bass, native to the northeast and upper Midwest areas of the United States, were widely introduced as a game fish during the late 1800s. When rock bass were introduced to Laurel Bed Lake, they multiplied unchecked by the presence of a suitable predator. As a result, this lake has been drained and

Many of the popular exotic baitfish species used throughout the United States and Virginia have now taken up permanent residence competing with other native fish.



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During annual fish sampling on Claytor Lake in October 2006, I collected three adult white perch, the same species introduced to Kerr Reservoir a few years ago. Although this is a low number of adults, it may indicate a larger population yet undetected in this 4,500-acre reservoir on the New River. This potential fish introduction in a reservoir that features good sunfish and bass fishing, as well as the best striped bass and hybrid striped bass fishing in southwestern Virginia, could have far-reaching impacts. Time and more studies by Department fisheries biologists will tell the tale of this fish introduction.

Lest you think Virginia's fish introduction tales are limited to the inland reservoirs that provide fishing recreation, I close with a story of an important Virginia river. Streams in the Tennessee River system in southwest Virginia are home to a number of unique, native endemic fish species. Endemic species are ones that only occur in limited areas or, in the case of fish, within specific river systems. One native endemic fish species in the upper Tennessee River system is the yellowfin madtom (*Noturus flavipinnis*). This smaller cousin of the large catfishes that roam Virginia waters is only known from a few streams in Southwest Virginia. One stream that was home to this species historically is the North Fork Holston River. While this unique catfish is not found in the North Fork today, our Department is working to restore unique species like this one in Virginia's inland waters. Future



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Anglers can play a big role in helping to manage Virginia's fisheries by not transporting fish to other lakes or rivers, not disposing of unwanted bait and aquarium fish, and reporting anything that looks like it came from the Black Lagoon.

restoration efforts for this species may be hindered by a baitfish introduction. At some point, anglers likely introduced another madtom species to this river, the margined madtom (*Noturus insignis*), since this native to the New River and eastern Virginia rivers is widely used as a baitfish for smallmouth bass. Since these two madtoms eat similar food items, successful reintroduction of yellowfin madtom to their historical habitat in this river may be hindered by competition with margined madtom.

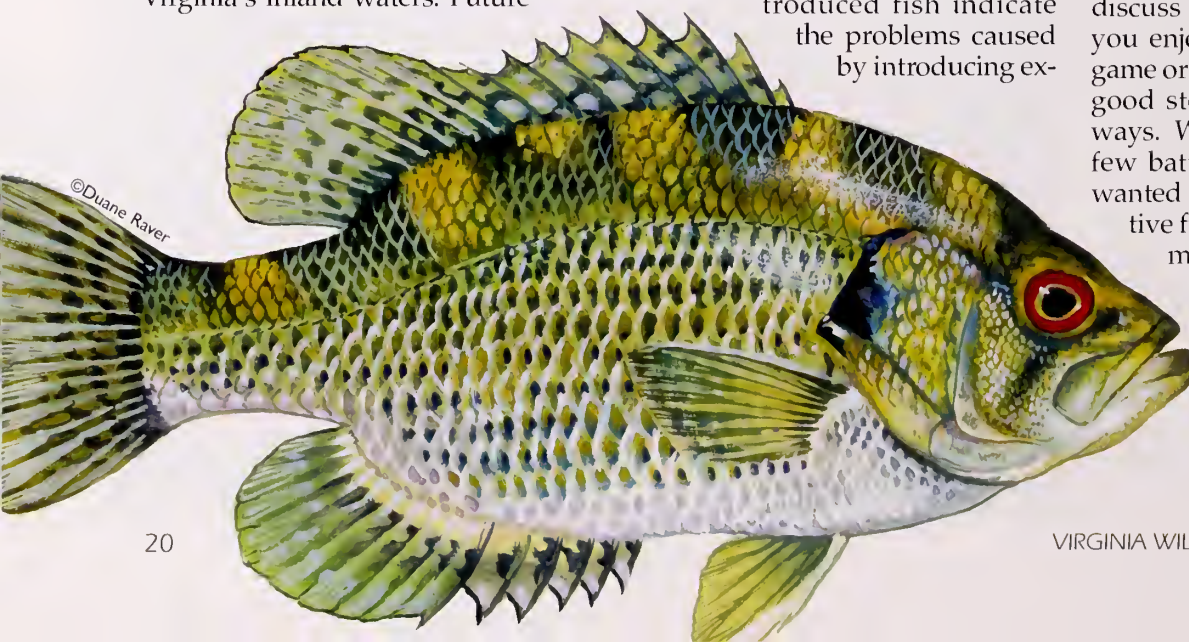
These tales of Virginia's introduced fish indicate the problems caused by introducing ex-

otic or transplanting native fish. When you head out to Virginia's waters, do not fear the *Creature from the Black Lagoon*, that fanciful tale of a humanoid fish. Fear only what havoc you wreak on your local water by introducing new species.

Take steps to reduce the impacts of species introductions. Report the sale of unusual bait fish to local Department personnel. When you use fish as bait, dispose of unused bait in a trash can, not in your local waterway. Don't dump unwanted aquarium species in local waters. Get educated about fish introductions. A good place to start is the U.S. Geological Survey's Nonindigenous Aquatic Species Web site at nas.er.usgs.gov. Contact your local Department fisheries or wildlife diversity biologist to discuss problem fish in the waters you enjoy. Don't transport favorite game or prey fish to new waters. Be a good steward of Virginia's waterways. With your help, we can win a few battles in the war against unwanted exotic and transplanted native fish. The fishery you save just may be your favorite one. □

John Copeland is a Fisheries Biologist with the Virginia Department of Game and Inland Fisheries.

Rock Bass



©Duane Raver



Nottoway County's *Jewel*

story and photos
by Marc N. McGlade

A bobber sits idly in the water while the sweet Virginia breeze brings the smells of nature to your olfactory senses. Blooming redbuds, dogwoods and Bradford pears in the spring are always a welcome sight. The lush green landscape of summer and its accompanying long days are reason enough to fish in Virginia. Autumn brings that incredible crispness to the air, punctuated by the eye-catching colors the trees display. Even the barren winter landscape has its inherent beauty.

These sights, smells and sounds the four seasons represent are available to anglers wishing to get away from the crowds of city living and the hustle-bustle of highways and byways. For those who like to pursue multiple fish species in a remote area, Lake Nottoway in Nottoway County is just the place.

This unheralded lake, with its abundant standing timber, deserves mention for its largemouth bass, bluegill, black crappie, channel catfish, shellcracker and chain pickerel since all call this tranquil lake home. Lake Nottoway's other local names include Lee Lake or Lee's Creek. This Southside jewel is located in central Nottoway County, 6 miles north of Blackstone.

Anglers looking to get away from it all should consider Lake Nottoway.

Charles Wallace, of Crewe, with a typical-size Lake Nottoway largemouth bass. Anglers will find a variety of fishing conditions around the lake, including aquatic vegetation, riprap, and standing timber.

The 188-acre, Virginia Department of Game and Inland Fisheries (VDGIF)-owned lake is full of fish. The scenic body of water was initially stocked in 1978 with Florida-strain largemouth bass, bluegill and shellcracker and opened to public fishing in 1980.

A VDGIF Gem

According to Dan Michaelson, a fisheries biologist with the Department, there are good reasons to be excited about visiting Lake Nottoway. He says the Department stocks channel catfish annually at a rate of 15 fish per acre. Channel cats are the only species the Department stocks; the other species are self-sustaining.

The Department samples every other year for largemouth bass and panfish population indices through electrofishing methods. A 12- to 15-inch slot limit (only fish that fall outside that range may be harvested) has been enforced at the reservoir since 1990 to help maintain a quality bass fishery.

Michaelson says Lake Nottoway compares most closely with Sandy River Reservoir. There is a healthy bass recruitment each year (thus the slot limit) and growth rates are average for this region in the Commonwealth.

"The top-end size of largemouth bass at Nottoway is not as impressive as Sandy, but we do see a good number of fish up to 6 pounds," the biologist says. "Many fish fall in the 2- to 3-



Lake Nottoway is located near Blackstone. It is a remote lake with a quality fishery for largemouth bass, bluegill, shellcracker, black crappie, channel catfish and chain pickerel.

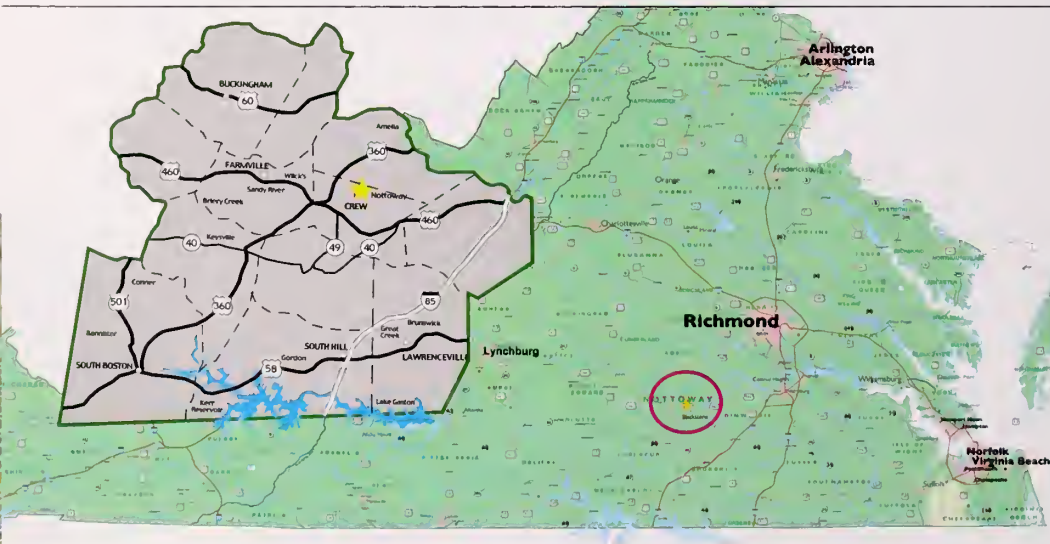
pound range, and there are lots of fish weighing less than or equal to a pound that should keep anglers busy."

Of course, Michaelson's data suggest the normal range. As is always the case, crafty anglers find a way to beat the standard. Most years, a brute or two will fall victim to an

angler fishing in the heavy, tangled jungle of wood beneath the calm surface. While not common, a few 10-pound bass have shown their fat bellies.

According to Michaelson, there is an impressive sunfish population. Redear (shellcracker) and bluegill are common sights on spawning beds in the spring. He indicates there are many quality sunfish awaiting visitors to this scenic location, and he says the best opportunity occurs in the spring.

"Lake Nottoway is probably the No. 3 fishery in the region," Michaelson says. "Not bad considering Briery (Creek Lake) and Sandy River (Reservoir) are No. 1 and No. 2, respectively. Overall, it's a very good fishery with bass, sunfish and some crappie to fish for. The maximum size





Above: Todd Gillispie of Richmond admires a chunky Lake Nottoway largemouth. Bass are plentiful in this scenic lake. Astute anglers should pay attention to a depth finder when seeking out structure where schooling fish, such as crappie, may be lurking.

on Nottoway doesn't compete with Briery, Sandy or even Lake Conner, but it's a quality fishery."

Specifics and Expectations

During the Department's sampling efforts, Michaelson states that

no areas were considered hot spots or emerged as the best location for any of the inhabitants. That is good news for anglers. It is to no one's surprise the entire lake holds fish, since the standing timber is so prevalent, thereby providing nutrients and cover to prey and predators.

Boaters can see duckweed,

pondweed (*Potamogeton*), lily pads and other aquatic vegetation when venturing across the small lake. With the available habitat listed, weedless lures help anglers maintain their sanity.

The dam has a mixture of wood and riprap, with shallow and deep water in close proximity. The lake has only three main coves on its east side, but each holds fish. The western shoreline has a few smaller coves that harbor all of the lake's resident species.

The Department collected age-and-growth data approximately six years ago. The growth rates they analyzed for largemouth bass were average for southern Virginia. Early growth is a little faster than later



The Lee Lake Lowdown

- ◆ For fisheries information regarding Lake Nottoway, contact the VDGIF's district office in Farmville at (434) 392-9645, or go online at www.dgif.virginia.gov.
- ◆ Lake Nottoway has a 10-horsepower maximum limitation for outboard engines; boats with larger engines must rely on trolling motors.
- ◆ There is one concrete courtesy boat ramp and pier for boaters to use on their own.
- ◆ A paved parking lot provides ample space for visitors to Lake Nottoway.
- ◆ Bank fishing is allowed around part of the shoreline near the dam and boat ramp.
- ◆ Lake Nottoway is open 24 hours per day, all year.
- ◆ Fishing regulations: largemouth bass—no fish between 12 and 15 inches may be kept, 5 per day in possession; sunfish—no size limit, 50 per day in possession; crappie—no size limit, 25 per day in possession; and channel catfish—no size limit, 20 per day in possession.
- ◆ The closest parks to the lake are Twin Lakes State Park in Prince Edward County and Holliday Lake State Park along the Buckingham County-Appomattox County line.
- ◆ Lake Nottoway is located 6 miles north of Blackstone. From U.S. 460, exit onto Rt. 606 and continue 5.1 miles to the lake entrance. The lake can also be reached from U.S. 360. From U.S. 360, take Rt. 153 south to Spainville, then turn right on Rt. 610. From there, turn left on Rt. 609 and then turn right on Rt. 606 to the lake.



Although not a trophy fish factory for crappies, Lake Nottoway has its share of catchable speckles thanks to lots of standing timber and submerged structure.

growth rates, with fish reaching 12 inches by age 3 and 15 inches by age 5 or 6. Michaelson says throughout the lifespan of the fish, growth is good. The Department sampled bass as long as 22 inches during the 2005 survey; however, most fish fall within the 12- to 16-inch range.

"During the 2005 spring sampling, we collected 232 bass per hour, 41 black crappie per hour, 392 bluegill per hour and 26 redear per hour as represented in our boat electrofishing surveys," Michaelson explains. "All crappie sampled were less than 9 inches. This is the highest number of crappie we've seen in spring surveys in 10 years. It's probably meaningless, but something we'll keep tracking. There is a limited population of crappie in Nottoway which is good, given the high density of bass in the system."

Unfortunately, due to other fisheries demands, resource constraints and so many other bodies of water to sample in Region II, the Department has been unable to perform an angler creel survey at Lake Nottoway in recent years.

Vertical jigging, slow casting or suspended under a bobber is the perfect combination for catching schooling crappies. Opposite page: With good bank access, Lake Nottoway is a great place to take a youngster or family for a day of fishing and relaxation.

Michaelson says the predator fish (largemouth bass and chain pickerel) predominantly eat sunfish species and small crappie. There are minnow species contained within the lake as well. Anglers should process that information and translate that into the appropriate choice for selecting lures or live baits.

The Department is optimistic for Lake Nottoway's future. The population indices for this lake have re-



A small assortment of bright-colored crappie tubes is all that is needed to have a big time at Lake Nottoway.



mained static for more than a decade (since the inception of the slot limit in 1990).

"Bass catch rates since 2000 have been between 216 and 243 fish per hour, which is high, but stable," the biologist says. "Bluegill catch rates bounce around some, but average in the mid-100s per hour. That is what we expect from bluegill catch rates. Redear remain in low numbers, but provide another nice species to catch. I expect more of the same for some time, but if we see drastic changes we'll head them off through regulation or other means."

Most of the bluegill sampled during 2005 were less than 6 inches in length, but there are many specimens more than 8 inches. The number of bluegill sampled were as high as any seen in the past decade, so bream fishing should be good for the next year or two—if the bass do not beat anglers to them.

Redears as long as 9 inches were also sampled, but numbers are very low. Lake Nottoway's sunfish fishery has historically been dominated by bluegill, so this is not a news flash.

Exercise Caution

While standing timber was left during construction of this fish factory, much of it has broken off and sits just below the surface at normal pool. Boaters must exercise caution and patience while navigating through the hardwood forest above and below the water's surface. Lake Nottoway's 10-horsepower maximum limitation for outboard engines is about right—anything more powerful could present problems.

And, just for argument's sake, let's say you and your boat become wedged between two pieces of standing timber. Do not fret; just sit back, enjoy the sights and hang on, as you might be telling your fishing partner to get the net. Remember to relax; after all, you are in a remote section of Nottoway County—not sitting in traffic on Interstate 95! □

Marc N. McGlade is a writer and photographer from Midlothian. A self-admitted bass addict, Marc enjoys spending a quiet day on Lake Nottoway chasing fat largemouth bass.





©Bill Lea

A Box Full of Sun

Scientists, educators and turtle enthusiasts have joined forces to find out where all the box turtles have gone.

by Todd Fredericksen, Ken Graves, Hannah Shively, David Ellington, Tiffany Walker and Kelly Rae Ingram

It is difficult not to like box turtles. These peaceful and colorful land turtles are commonly encountered along forested trails, roadways, and backyards throughout eastern

North America. Although quite common, many people may be surprised at some of the amazing adaptations of these hard-shelled critters and how forest fragmentation, urban sprawl and over-collecting is threatening box turtle populations.

In addition to the eastern box turtle (*Terrapene carolina*) that we have in Virginia, there are three other species of box turtles native to North America including the ornate box turtle (*Terrapene ornata*) which inhabits the grasslands of the midwestern United States, the Coahuilan box turtle (*Terrapene coahuila*) of northeastern Mexico and the spotted box turtle (*Terrapene nelsoni*) of southwestern Texas.

In addition, there are four subspecies of the eastern box turtle within its range from Maine to Florida, westward to Michigan and south to Texas.

Box turtles are named for their ability to fully enclose themselves within their shell, which is composed of two parts: the carapace, or upper half of the shell, and the plastron, or lower half of the shell. The shell is fused to their backbone and it affords turtles protection against predators as well as harsh environmental conditions. The bony shell is covered with plates called scutes made of a protein called keratin. A box turtle encloses within its shell by tucking its head and tail into an "S" position. It



©Bill Lea

kill box turtles that are unable to get back to their hibernating locations.

In the spring and summer, box turtles spend most of their time in forests. They will often venture into openings, however, in search of food, basking locations and nesting locations. During periods of hot weather, box turtles are often found resting in streams trying to beat the heat. Turtles tend to be more active when humidity levels rise and are especially active following summer rain events. In our studies of box turtles in Franklin and Henry counties, we have found about an equal number of box turtles in mature forests and in early successional forests created by logging. Young box turtles spend most of their days in thick vegetation where they may receive greater protection against predators. Newly hatched box turtles have thinner shells, which make them vulnerable to predators, such as raccoons, crows, skunks and opossums. Their secretive lifestyle explains why young box

Left: An adult and young Eastern box turtle. Below: Box turtles are neither territorial nor social, and probably do not perform such circus tricks on their own.

surprises

exhales air from its lungs upon executing the tuck, often making a hissing sound in the process. What allows the box turtle to fully enclose itself is the hinged plastron. When fully enclosed, even the most determined raccoon will often give up trying to pry them open.

Life History

The eastern box turtle is remarkably well-adapted to life in our eastern forests and has changed little since the Miocene period (about 10 million years ago). Box turtles lead unassuming, simple lives with four basic activities: eating, mating, resting and trudging along at a turtle's

pace between the first three listed activities.

During the winter, box turtles are usually in a state of torpor or inactivity. They go dormant at about the time of the first hard frost and emerge around the time of last spring frost in late April or early May. Overwintering locations include burrows under logs, leaves, mud and hollows around tree stumps. These locations, however, do not afford them total protection against the cold. In many cases, the tissue of box turtles may temporarily freeze during extreme winter conditions. Fortunately, there is usually little lingering effect. It is the largest animal capable of surviving over half of its body tissue freezing without ill effects. Box turtles are stimulated into activity by the warmth of spring days and may be coaxed out of hibernation too early by warm weather early in the spring or late in the fall. If a cold snap occurs following one of these periods, it can



©Neil Fredericksen



©Todd Fredericksen

Above: Ken Graves is engraving an identification number on a turtle. Lower left: Ken is tracking a radio-tagged box turtle using a receiver and antenna. Turtles can be picked up as far away as a half mile, although they seldom wander too far from day to day. Lower right: All turtles collected were weighed and then measurements were taken of their shell dimensions to monitor long-term growth.

turtles are less often seen compared to adults.

Box turtles are like all-terrain vehicles and we have found them amidst areas saturated with fallen logs as well as in areas strewn with large rocks. They seem to be able to detect steep drop offs. In over 2,500 vertebrate animal captures in pitfall traps over two years, we have caught only one box turtle. Even the promise of invertebrate food items in these pitfalls does not seem to lure them into the traps.

Box turtles are omnivores, eating

a wide range of foods including fruits, foliage, invertebrates, carrion, and fungi, including the poisonous destroying angel (*Amanita*) mushroom. Earthworms, blackberries and wild strawberries appear to be some of their favorite foods.

Box turtles spend a large amount of their time in depressions called "forms." These are depressions that box turtles make in the soil or in leaf litter while they are at rest. The only visible part of a turtle while it is in its form may be its carapace. In many cases, the turtle is totally covered by soil or leaves. Turtles move out of their forms in the morning or after other periods of inactivity to resume their roaming. Their roaming is not completely random. Roaming box turtles are usually searching for a mate or food. Females will also search for suitable nest sites. Often the same turtle can be found year-after-year roaming around in the same area. This is referred to as a turtle's "home range." Home ranges vary in size from 0.5–15 acres, but most are less than 2 acres. Turtles may be aggressive towards other turtles in their home range. They are not very sociable either, except during mating. Turtle mating encounters appear to be random. Males can be differentiated from females by their more elongated carapace, fiery or-



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Turtles were equipped with a transmitter, antennae and temperature recorder.

ange eyes, and concave plastron that facilitates mounting on top of the female carapace. Females lack the concave plastron, have a more rounded shell, and tend to have yellowish-brown eyes. Mating occurs in the spring and early summer. Females may store sperm for years and may therefore have broods that arise from different males. Females typically seek out a moist, but sunny location for laying eggs. They excavate a small cavity with their hind feet into which they deposit, and then cover them with soil. The number of eggs or clutch size varies from 2–7 eggs with 3–4 being the average. The eggs hatch after about two months, assuming the nest is not found by predators.

Studying Box Turtles

In 2005, we initiated a study of box turtles in the forests located on the Ferrum College campus and in a number of other areas within Franklin and Henry counties where we were studying the effects of logging. We became interested in the size of the box turtle's home range in our area in relation to another study we were conducting involving the response of different reptile species to

Female box turtles have yellowish-brown eyes, whereas males have a more reddish-orange look to their eyes.

logging. We started by gluing transmitters to two box turtles and then tracking their movements throughout the summer with a radio telemetry antenna and receiver. We lost touch with one turtle after only one day, but were able to follow the other turtle from May through September, when the transmitter battery expired. This male turtle spent its entire summer on a sloping one-acre patch of land on the side of Ferrum Mountain. We found it again by chance in July 2006 about 100 yards north of this area with its transmitter still intact. We removed it and are currently refitting the battery to follow its wanderings again.

In May 2006, we installed transmitters on four new turtles, two males and two females (one was a pair found in the act of mating!) and added miniature temperature recorders as well. So far, these turtles have displayed home ranges from 1–2 acres. All five turtles with transmitters settled down in their hibernation locations from late-October to mid-November. Their hibernation locations varied greatly by slope, aspect, and microsite. All of the turtles hibernated just under the leaf litter with only about 1 inch of soil above them. We intend to continue tracking them during the overwintering period.

What You Can Do For Box Turtles

- ❑ If you can do it without creating a traffic hazard, move turtles off the road onto the side they are headed. Never relocate turtles to areas far from where you find them.
- ❑ Do not take box turtles from the wild to keep as pets. It may be possible to adopt turtles from a local reptile/turtle rescue organization.
- ❑ Be careful when mowing lawns, turtles are often active in these areas in the early morning and late afternoon hours.
- ❑ Learn more about turtles. Visit the following Web sites:

Mid-Atlantic Turtle and Tortoise Society
<http://www.matts-turtles.org>

Partners in Amphibian and Reptile Conservation
<http://www.parcplace.org>

Virginia Herpetological Society
<http://fwie.fw.vt.edu/vt.edu/vhs>



Lee Walker

In addition to the turtles with transmitters, we also marked other turtles using permanent shell notching that we found on the Ferrum College campus and other study sites. To date, we have marked 62 turtles, 37 of which were males, 22 females, and 3 that were too young to determine their sex. Their average age has been 23.7 years (you can get a rough estimate by counting the growth rings (or annuli) within an individual scute) and average weight has been 381 grams. Most turtles were found during area searches, although we did enlist the help of John Rucker from eastern Tennessee who has trained two Boykin spaniels to retrieve turtles.

Conservation

Box turtles are common throughout much of their range and their long lifespan (up to 150 years) may seemingly afford this species protection against population declines. Yet, box turtle populations are under siege from a number of threats. As forests become fragmented, turtles may lose important habitat needed for thermoregulation and hibernation. Moreover, increased edge habitat intersected by roads leads to increased populations of predators, such as raccoons, and more encounters with vehicles. Many box turtles do not make it across the road. Highway mortality is a serious threat to the survival of many local popula-



©Todd Fredericksen

John Rucker receives a little assistance from one of his dogs. Below: A box turtle trying to cross a busy road is unfortunately a common sight on many of Virginia's highways. If you decide to help them across the road please do so safely and never transport a wandering turtle too far from where you found it.

tions. Some turtle researchers are concerned that increased adult mortality coupled with recruitment failures from excessive predation may be taking its toll on the amiable little creature.

Because of their appeal, box turtles are often taken from the wild for adoption as pets. The collecting of

box turtles for personal pets has become a serious concern to conservationists. Removing even one adult turtle can be detrimental to the local population. And once they are removed, they can never be returned. Turtles held in captivity and released into the wild are more vulnerable to predators or being hit on highways as they search for their home.

In order to learn more about box turtles and to promote conservation and education about this species, a North American Box Turtle Working Group has formed which includes scientists, educators and turtle enthusiasts. The working group holds an annual workshop and helps disseminate research results and educational materials. In many ways, the box turtle is a flagship species that may help the public get behind conservation efforts on a larger scale. These passive, loveable and amusing turtles can be readily observed and handled by adults and children alike. As Ken Dodd states in his classic text on these creatures "Everybody likes box turtles." □

Dr. Todd Fredericksen is Assistant Professor of Forestry and Wildlife and Environmental Science Program Coordinator, Ferrum College. Hannah Shively and Ken Graves are recent graduates of the Environmental Science Program at Ferrum College. David Ellington, Tiffany Walker, and Kelly Rae Ingram are students currently working toward undergraduate degrees with the School of Natural Sciences and Mathematics at Ferrum College.



Lee Walker



Journal

2007 Outdoor Calendar of Events

July 17: *Smallmouth Fishing Workshop*, Floating the New River at Bisset Park, Radford. For more information call 804-367-6778 or go the Department's Web site at www.dgif.virginia.gov.

August 7: *Flat Out Catfishing Clinic*, Pony Pasture, Richmond. For more information call 804-367-6778 or go the Department's Web site at www.dgif.virginia.gov.

August 10-12: *24th Annual Virginia Outdoor Sportsman Show*, The Showplace, Richmond. For more information call 804-748-7520 or visit www.sportsmanshow.com.

August 24-26: *Mother/Daughter Outdoors*, Holiday Lake. For more information call 804-367-0656 or go the Department's Web site at www.dgif.virginia.gov. □



Oops, I Didn't Mean to Say That!

by Jennifer Worrell

People say the silliest things at times; what's even more amusing is when they do not even realize the gravity of their comments. Gloucester Game Warden Michael Morris had an interesting conversation with a constituent during the 2006-2007 deer hunting season. This particular gentleman was complaining about deer causing damage on his property, and he wanted Morris's help with the matter. Morris suggested that the man acquire a hunting license and harvest the deer as any other hunter

would during the season—this was a certain way to take care of his problems.

The man was a bit confused.

"You mean I can just shoot the deer in my yard?" Morris's constituent inquired.

"You certainly can," the officer replied.

"You mean during the day?" the man asked.

"Of course," said the officer, raising an eyebrow.

"Hmmm. I've never shot deer during the day," said the man. "I've only shot them at night!" □



by Beth Hester

Making Decoys The Century Old Way

by Grayson C. Chesser and Curtis J. Badger

2006 Tidewater Publishers
ISBN: 978-0-87033-579-2

Trade paper with illustrations and color photographs

"Just as old decoys, their paint chipped and worn to rich patina, can tell us about hunting as it was a century ago, today's decoys can help us relive that era, when great flocks of waterfowl darkened the sky."

Making Decoys The Century Old Way, is a fond and detailed presentation of traditional Delmarva style decoy carving. Once humble working tools designed to lure ducks within gun range, decoys have become highly sought after works of collectable folk art.

Author Curtis Badger, and artist/carver/teacher Grayson

Chesser, provide detailed, step-by-step instructions suitable for honing the skills of beginners as well as advanced carvers. The focus is on grounding decoy carvers in the use of traditional tools, materials and methods, advancing to the replication of the subtle "ducky" gestures and details that make for a successful rig. Creating decoys to form a cohesive, successful rig, is a bit like putting together a balanced still life comprised of sleepers, dabblers, feeders and preeners. To this end, the authors provide over 50 waterfowl patterns (geese included), and photo plates to help carvers make decoys that mimic various duck positions and expressions. For example, one half of a page is devoted to the depiction of 10 teal heads, each representing a different duck "attitude." You'll also learn how to create your own muffin tin decoy and anchor weights, work with cork, and detail your decoys with paint.

Making Decoys The Century Old Way also contains brief, but valuable sections on the traditions, rituals and symbols of duck hunting, and the importance of modern waterfowl carving as a bridge, emphasizing Grayson Chesser's own links with Delmarva's great carvers now long-gone, but not forgotten.

Read this book at bedtime...you'll wake up with cedar shavings under your pillow. □

2006 Morgan Award

by Lt. David Dodson

Vernie Kennedy, of Bedford, Virginia, received Virginia's highest Hunter Education award on April 14, 2007. He was presented the William Dixon Morgan Memorial Award, given annually to the Hunter Education instructor deemed to have contributed the most to Hunter Education. Vernie's knowledge of hunting



During the 2007 Hunter Education Championship, Vernie Kennedy oversees safety and scoring on the shotgun course.

started as a youth chasing basically anything that moved through the fields and streams on his family's farm. As the years went by, he found a calling shared by all Hunter Education instructors, the desire to keep the tradition of hunting alive by passing on our knowledge to others. In the late 90s, this desire "formally" came to fruition when he became an instructor for the Department. Since that time, he has trained over 2,400 students and logged in excess of 2,600 hours of volunteer service to the Hunter and Outdoor Education Programs.

His commitment to the program speaks for itself. Within two years of service, he had earned both Senior and Master Instructor credentials. To date, he has taken over 30 different advanced training classes as a student. When the Department finally ran out of ideas for classes for him to take, it was decided that it was time for him to teach...and teach he has. At any point in time, you may find him instructing any of the shooting disciplines or instructing classes like Hunter Education alternative delivery or turkey hunting. Vernie is also one of the primary instructor-trainers, teaching range operations and safety to Hunter Education volunteers.

When it comes to teaching hunter education classes, he's just as committed. As county coordinator, he has been instrumental in scheduling, setting up and instructing classes and live fire training exercises in one of the state's most active counties. In addition, he has assisted in Department-sponsored activities and events across the state including women and family programs, 4-H Shooting Sports activities and camps, Boy Scout activities, National Wild Turkey Federation Jakes events and many other activities too numerous to mention. He's coached and sponsored multiple Hunter Education Challenge teams, hosted Department-sponsored hunting workshops and recently, with the help of fellow instructors, organized and conducted a series of National Rifle Association-sponsored professional development workshops for our staff.

In his "spare time," Vernie also runs an apple orchard, is a cattleman, sows fields, cuts hay, breeds turkey dogs, works at Southern States, is a Deer Management Assistance Program cooperater, a NRA Training Counselor and is a husband and a father.

The Morgan Award is an annual award in memory of William Dixon Morgan presented to the hunter education instructor who has made extensive contributions for hunter safety. □

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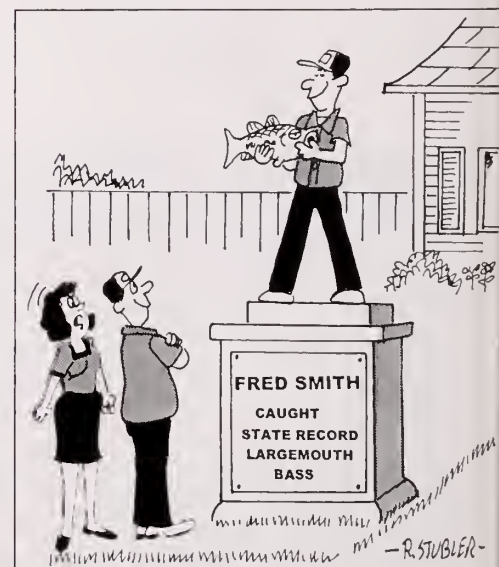
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"Fred, don't you think you're going a little overboard?"

RECIPES

by Joan Cone

It's Always Time for Virginia Shellfish

Now is a good time to enjoy Virginia shellfish. The most consumed Virginia shellfish are blue crab, scallops, hard and soft clams and oysters. While available year-round, oysters are best and fattest in fall and winter, being least expensive January through March.

Zucchini Crabmeat Casserole

This is one of my favorite recipes and is perfect as a luncheon dish.

12 ounces blue crabmeat, fresh or pasteurized
4 cups (3 to 5 medium) 1/4-inch slices zucchini
1 1/2 cups biscuit baking mix
1 1/2 cups shredded Cheddar cheese
2 teaspoons instant minced onion
1/2 cup vegetable oil
3 eggs
1 teaspoon oregano
Salt and pepper to taste

Preheat oven to 400°F. Remove any pieces of shell or cartilage from crabmeat. Mix all ingredients together and spread in a 12 x 7 1/4 x 2-inch greased baking dish. Bake uncovered until golden brown and knife inserted in center comes out clean, 25 to 30 minutes. Serves 6.

Crab Salad

1 pound crabmeat
1/2 cup mayonnaise
2 tablespoons chopped onion, optional
1 cup chopped celery
2 tablespoons chopped sweet pickle
2 hard-cooked eggs, chopped
Salt and pepper to taste
Lettuce

Remove any pieces of shell or cartilage from crabmeat. Combine with all other ingredients except lettuce. Serve in lettuce cups. Serves 4.

Scallops in Wine

With this recipe you will save energy in the kitchen, as it takes only a few minutes to cook.

1 pound scallops, fresh or frozen
1/4 cup flour
Salt to taste
Dash pepper
4 tablespoons butter
3/4 cup white table wine
2 tablespoons chopped parsley

Thaw scallops if frozen. Rinse with cold water to remove any remaining shell particles. Drain. Dust scallops with flour to which salt and pepper have been added. Melt butter in a heavy skillet or electric frypan and add scallops. Sauté until lightly brown, shaking skillet to allow even browning. Add wine and simmer 3 minutes. Then add chopped parsley and serve with skillet juices over rice or toast points. Serves 3.

Peaches and Scallops

(For microwave)

1 pound scallops, fresh or frozen
3 slices bacon
2 tablespoons melted butter
2 tablespoons lemon juice
Salt to taste
12 canned peach halves
1/4 teaspoon cinnamon
1/4 teaspoon cloves
1/4 teaspoon mace

Thaw scallops if frozen. Rinse with cold water to remove any shell particles. Cut scallops into 1/2-inch pieces, making sure pieces are equal in size. Cut bacon in fourths, crosswise. Place bacon on a paper plate and cover with paper toweling. Microwave on HIGH power for 2 1/2 minutes or until bacon is crisp. Place butter in a bowl and microwave on high for 1 minute. Add scallops, lemon juice and salt to melted butter. Drain peach halves and place cut side up in an oblong baking

dish. Combine spices and sprinkle over peaches. Place about 2 tablespoons of scallop mixture in center of each peach. Place a piece of bacon on each peach. Microwave, uncovered, on HIGH power for 6 to 7 minutes, turning dish once during cooking. Serves 6.

New England Clam Chowder

1 pint shucked cherrystone clams
1/4 cup chopped bacon
1/4 cup chopped onion
1 cup clam liquor or water
1 cup diced potatoes
Salt to taste
Dash pepper
2 cups milk
Chopped parsley

Drain clams and save liquor. Chop clams. Fry bacon until lightly browned. Add onion and cook until tender. Add liquor, potatoes, seasonings and clams. Cook for 15 minutes or until potatoes are tender. Add milk and heat. Garnish with parsley sprinkled over the top. Serves 4 to 5.

Fried Soft Shell Clams

1 quart fresh-shucked soft shell clams, drained
About 4 cups dry pancake mix (any type)
Fat or oil for frying
Salt
Lemons
Cocktail sauce or melted butter

Place pancake mix into large shallow bowl. Add clams, a few at a time tossing lightly until well coated. Shake off excess breading. Fry in 1 to 2 inches of fat or oil for 1 1/2 to 2 minutes at 375°F. or until golden brown. Drain excess oil on paper towel. Repeat process until all clams are cooked. Salt lightly, if desired, and serve with lemons, cocktail sauce or by dipping in melted butter. Makes 6 servings of about 12 clams each. □

Photo Tips



by Lynda Richardson

Flying Those Friendly Skies

Remove your shoes," the uniformed man snapped as he pointed to my feet. "I know, I know," I mumbled fighting to remove a laptop from its neoprene cover snuggled deep within my leather briefcase. I grabbed a rectangular, plastic container and carefully placed the computer inside. I reached for another and dropped the briefcase in, making sure the straps were not able to catch on anything. As I dutifully bent over to take off my shoes, a heavy weight shifted towards my head. Oops, camera backpack. As my other valuables clattered down the silver conveyer to be scrutinized, I pulled the backpack

Airline travel might seem more annoying but, to the digital photographer, it has gotten easier. According to the International Imaging Industry Association (I3A), in 2004, tests conducted by I3A, SanDisk Corporation (producer of media cards), and the US Transportation Administration (TSA), verified that digital camera equipment and media cards were not adversely affected by airport security x-ray and checked luggage scanners. Now I know scanners have changed since then, but I am still hearing and reading articles that continue to confirm the safety of digital air travel.

Scanners are one thing, but I

through airport scanners as long as you use common sense, and be sure to remove your shoes in a timely fashion. □

You are invited to submit one to five of your best images to "Image of the Month," Virginia Wildlife Magazine, P.O. Box 11104, (4010 West Broad Street), Richmond, VA, 23230-1104. Send original slides, high quality prints, or high res jpeg files on disk and include a self addressed, stamped envelope or other shipping method for return. Also, please include any pertinent information regarding how and where the image was captured, what camera, film and settings you used. I hope to see your image as our next, "Image of the Month!"



©Lynda Richardson

To the delight of birders and photographers this snowy owl, a species normally found up north, flew into Richmond's International Airport a few years back. It was, however, not asked to remove its shoes when departing.

full of expensive, and heavy, digital photography equipment off of my back and hoisted it up onto the assembly line to follow the containers, long gone. The man glared at me and pointed at my feet again, twice.

would NEVER recommend sending delicate digital (or film) equipment through as checked luggage. I hand carry everything in an "airline approved," photography backpack. For one thing, things can get "lost" in checked luggage. And another, have you ever seen those underpaid, baggage handlers load and unload the cargo hold?

As you prepare to travel this summer, know that your digital equipment will be safe going



Image of the Month

Congratulations to Terry Navarre, of Amherst, for his adorable image of a grey tree frog calling from the edge of his above ground swimming pool. (I think the little guy was trying to skinny dip when no one was looking!) Terry photographed the frog with a Fuji Fine Pix A345 digital camera set at ISO 100, and shot at 1/30th of a second at f2.8. Wonderful job Terry!

On The Water

by Jim Crosby



Boaters To Get Educated

For the first time, Virginia law now requires all boaters to get educated. Well, not today, but it's coming in increments based on your age and the type of boat you operate.

Bills passed in the House and Senate have been signed into law by Governor Kaine and will become effective this July 1. The identical bills call for the Department of Game and Inland Fisheries to develop the implementing regulations, which have to be in place by July 1 of 2008.

If you do not operate any boat with a motor of 10 horsepower or greater, you will not be affected. This includes canoeists, sail boaters and those who only use small electric motors, wind and muscle power. However, if your sailboat has a kicker of 10 HP or greater, you will be affected. All of those who operate personal watercraft (PWC) will be affected.

The requirement to have successfully completed an approved boating safety course will be phased in over a period between 2009 and 2016. All phase-in deadlines will have a July 1 date for each year.

- The first deadline occurs in 2009 and that affects PWC operators 20 years of age and younger.
- The next phase-in deadline will be for PWC operators 35 years of age or younger by 2010.
- PWC operators 50 years of age or younger and motorboat operators 20 years of age or younger will have a deadline of 2011.
- All PWC operators regardless of age and motorboat operators 30 years of age or younger must comply by 2012.
- Motorboat operators 40 years of age or younger must comply by 2013.

- Motorboat operators 45 years or younger must comply by 2014.
- Motorboat operators 50 years of age and younger must comply by 2015.
- And the last group, which includes all motorboat operators regardless of age, must comply by 2016. That's all of us more mature boaters.

This requirement for boating safety education covers all public waters within the Commonwealth.

You can meet the requirement by successfully completing a boating safety course approved by the National Association of State Boating Law Administrators. The list of approved courses can be found on the Department Web site.

For the really experienced and knowledgeable boater, there will be a proctored equivalency exam available that one can challenge. However, if you fail the test, you will then have to take an approved course to comply with the new law.

Of course there are some common sense exemptions covered in the law. For example: if you have a valid license to operate a vessel issued to maritime personnel by the U.S. Coast Guard or a marine certificate issued by the Canadian government, you will be exempted.

The bill also includes provisions for a 90-day temporary operator's certificate for the operator of a newly acquired boat.

If you temporarily rent or lease a boat from a rental or leasing business you will have some exemption.

Operators, under the onboard direct supervision of a person who already meets the requirements, such as children or family members who

are learning how to safely operate a boat will be exempted.

Operators who meet the applicable boating safety education requirements of their state of residency will be exempted for 90 days of operation in Virginia.

Commercial fishermen or a person under their direct supervision will be exempted while operating the commercial fisherman's boat.

Law enforcement officers will be exempted while they are engaged in the performance of their official duties.

Another common sense exemption comes into play if you must operate a motorboat due to the illness or physical impairment of the initial operator to return the boat to shore in order to obtain aid or medical care for the disabled operator.

Proof of compliance is an area that is to be addressed by the regulations to be developed by the VDGIF Board. But for now it is safe to assume that you will have to be able to produce documentation that you are in compliance should a law enforcement officer request it. □

Author's Note: I always welcome feedback, input and/or suggestions from readers. My email address is: jecrosby@comcast.net



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